

ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2016



Presented By
City of Battle Creek

PWS ID#: 0000450

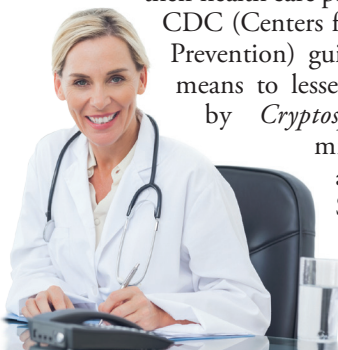
Serving Our Customers Matters to Us!

We are pleased to present our annual water quality report for the 2016 calendar year. We ask that you review the information included to learn about the safe water supplied by the City of Battle Creek. The continuous efforts of our staff at all levels of our organization ensure safe water, reasonable rates, and confidence in our water system's future. Utilizing new technology and effort, we are meeting the challenges of water quality and infrastructure replacement with the promise of always being there for you, our customer. We strive for your confidence in us to supply quality water at fair rates with minimal outages. Please let us know your thoughts on what we deliver.

For more information about this report, or for any questions relating to your drinking water, please call Perry Hart, Utility Administrator, at (269) 966-3481. The following contacts may be used for non-Battle Creek residents; City of Springfield (269) 965-2354; Emmett Township (269) 968-0241.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/ CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or at <http://water.epa.gov/drink/hotline>.



Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban storm-water runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban storm-water runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.



Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/lead.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems,



irrigation systems) or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (back-pressure). Contamination can also occur when the pressure in the drinking

water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (back-siphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

Source Water Assessment

The state performed an assessment of our source water from the Verona and Columbia well fields in 2003, to determine their susceptibility, or relative potential, for contamination. The susceptibility rating is on a seven-tiered scale, from a very low to very high, and is based primarily on geologic sensitivity, water chemistry, and contaminant sources. The susceptibility rating of the Verona Well Field is high and the rating for the Columbia Well Field is moderately high. Known sources of contamination within the Verona Wellhead Protection Area are being remedied to prevent movement of contamination to municipal wells. To further protect our sources of drinking water, the City of Battle Creek developed a wellhead protection plan for both well fields. If you would like to know more about the report, please contact Perry Hart, Utility Administrator, at (269) 966-3481.

Where Does My Water Come From?

The City of Battle Creek uses ground water from the Marshall Sandstone Aquifer, drawn from the Verona Well Field located in the northeast section of the city, as its sole source of drinking water. We drill wells into the sandstone formation to collect the water that is stored there.

What Is Ground Water?

Ground water is water beneath the surface of the earth that fills openings, known as pore spaces, in sand gravel, or fractured rock. Ground water begins as precipitation from snow or rain that passes through the soil and accumulates in the pore spaces.

What Is an Aquifer?

When enough water accumulates to supply a well, it is considered an aquifer. The City of Battle Creek obtains its water from a bedrock aquifer. The water is pumped from 22 wells, with depths ranging from 100 to 150 feet.

The City of Springfield owns, operates, and maintains the water distribution system within their city limits; The City operates and maintains the Springfield owned sewer collection system. Emmett Township owns the water distribution and sewer collection systems within their townships; the City operates and maintains both of these systems under contracts with Emmett.

What Are PPCPs?

When cleaning out your medicine cabinet, what do you do with your expired pills? Many people flush them down the toilet or toss them into the trash. Although this seems convenient, these actions could threaten our water supply.

Recent studies are generating a growing concern over pharmaceuticals and personal care products (PPCPs) entering water supplies. PPCPs include human and veterinary drugs (prescription or over-the-counter) and consumer products, such as cosmetics, fragrances, lotions, sunscreens, and house cleaning products. From 2006 to 2010, the number of U.S. prescriptions increased 12 percent to a record 3.7 billion, while nonprescription drug purchases held steady at around 3.3 billion. Many of these drugs and personal care products do not biodegrade and may persist in the environment for years.

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Never flush unused medications down the toilet or sink. Instead, check to see if the pharmacy where you made your purchase accepts medications for disposal, or contact your local health department for information on proper disposal methods and drop-off locations. You can also go on the Internet (<https://goo.gl/aZPgeB>) to find more information about disposal locations in your area.

Monitoring and Reporting Violation

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the compliance period of July 6–19, 2016, we did not complete all monitoring or testing for water quality parameters and therefore cannot be sure of the quality of our drinking water during that time. However, this violation does not pose a threat to your supply's water.

What should I do? There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. Even though this is not an emergency, as our customers, you have a right to know that this happened and what we did to correct the situation.

The table below lists the contaminants(s) we did not properly test for, how often we are supposed to sample for these contaminants, how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date we collected follow-up samples.

CONTAMINATE	REQUIRED SAMPLING FREQUENCY	NUMBER OF SAMPLES TAKEN	WHEN ALL SAMPLES SHOULD HAVE BEEN TAKEN	DATE ADDITIONAL SAMPLES WERE (OR WILL BE) TAKEN
Water Quality Parameters (pH, Alkalinity, temperature, orthophosphate, chloride, and sulfate)	1 sample every two weeks	0	Between 07/07/2016 and 07/19/2016	07/22/2016 and 07/26/2016

What happened? What is being done? We inadvertently missed taking a sample within this required sampling period. We are making every effort to assure that this does not happen again. Samples taken since then show that all results meet acceptable limits.

For more information, please contact Perry Hart at (269) 966-3481, or the Michigan Department of Environmental Quality at (269) 567-3612.

Please share this information with other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or in the mail.

This notice is being sent to you by the City of Battle Creek.

Tip Top Tap

The most common signs that your faucet or sink is affecting the quality of your drinking water are discolored water, sink or faucet stains, a buildup of particles, unusual odors or tastes, and a reduced flow of water. The solutions to these problems may be in your hands.

Kitchen Sink and Drain

Hand washing, soap scum buildup, and the handling of raw meats and vegetables can contaminate your sink. Clogged drains can lead to unclean sinks and backed up water in which bacteria (i.e., pink and black colored slime growth) can grow and contaminate the sink area and faucet, causing a rotten egg odor. Disinfect and clean the sink and drain area regularly. Also, flush regularly with hot water.

Faucets, Screens, and Aerators

Chemicals and bacteria can splash and accumulate on the faucet screen and aerator, which are located on the tip of faucets, and can collect particles such as sediment and minerals, resulting in a decreased flow from the faucet. Clean and disinfect the aerators or screens on a regular basis.

Check with your plumber if you find particles in the faucet screen, as they could be pieces of plastic from the hot water heater dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet gasket with a higher-quality product. White scaling or hard deposits on faucets and showerheads may be caused by hard water or water with high levels of calcium carbonate. Clean these fixtures with vinegar or use water softening to reduce the calcium carbonate levels for the hot water system.



Water Filtration/Treatment Devices

A smell of rotten eggs can be a sign of bacteria on the filters or in the treatment system. The system can also become clogged over time, so regular filter replacement is important. (Remember to replace your refrigerator filter!)

Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all detects below their respective maximum allowed levels. The State recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program. (Data available on request.)

Regulated Substances											
				City of Battle Creek		Emmett Township		City of Springfield			
Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Amount Detected	Range Low-High	Amount Detected	Range Low-High	Violation	Typical Source
Alpha Emitters (pCi/L)	2015	15	0	4.4	NA	NA	NA	NA	NA	No	Erosion of natural deposits
Barium (ppm)	2012	2	2	0.16	NA	NA	NA	NA	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beta/Photon Emitters (pCi/L)	2015	50	0	5.3	NA	NA	NA	NA	NA	No	Decay of natural and man-made deposits
Chlorine (ppm)	2016	[4]	[4]	0.48	0.43–0.60	NA	NA	NA	NA	No	Water additive used to control microbes
Combined Radium (pCi/L)	2015	5	0	1.62	NA	NA	NA	NA	NA	No	Erosion of natural deposits
Fluoride (ppm)	2016	4	4	0.80	0.49–0.80	NA	NA	NA	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2016	60	NA	8.6	5–14	2	NA	10	NA	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2016	80	NA	54	29–57	58.8	NA	35.3	NA	No	By-product of drinking water disinfection
Tap Water Samples Collected for Lead and Copper Analyses from Sample Sites throughout the Community											
Substance (Unit of Measure)	Year Sampled	AL	MCLG	Amount Detected (90th%tile)	Sites Above AL/Total Sites	Violation	Typical Source				
Copper (ppb)	2016	1,300	1,300	460	0/61	No	Corrosion of household plumbing systems; Erosion of natural deposits				
Lead (ppb)	2016	15	0	1.0	0/61	No	Corrosion of household plumbing systems; Erosion of natural deposits				
Secondary Substances (City of Battle Creek)											
Substance (Unit of Measure)	Year Sampled	SMCL	MCLG	Amount Detected	Range Low-High	Violation	Typical Source				
Chloride (ppm)	2016	250	NA	42	39–45	No	Runoff/leaching from natural deposits				
Sulfate (ppm)	2016	250	NA	54	40–59	No	Runoff/leaching from natural deposits; Industrial wastes				
Unregulated Substances (City of Battle Creek)											
Substance (Unit of Measure)	Year Sampled	Amount Detected		Range Low-High		Typical Source					
Sodium (ppm)	2016	18		15–20		Natuarily present in the environment; Road salting; Septic systems					

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

SMCL (Secondary Maximum Contaminant Level): SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.